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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,662	05/14/2001	Kazuyuki Shigeta	35.C15364	6820

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EXAMINER	
ABDULSELAM, ABBAS I	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/853,662	KAZUYUKI	
	Examiner	Art Unit	
	Abbas I Abdulselam	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,11-15,17,19,21,32,40 and 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,11-15,17,19,21,32,40 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/04 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-3, 11-15, 17, 19, 21, 32 and 40-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 11-15, 17, 19, 21, 32 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloom et al. (USPN 6219015) in view of Kuramoto (USPN 6545659) and Tai et al. (USPN 5371618).

Regarding claims 1, 21 and 32, Bloom teaches a color display system including the use of modulators, which helps generate images that can be viewed directly or projected onto a viewing

screen. Bloom also teaches a modulator (30) that can operate to modulate incident light and also teaches diffraction of red, green and blue spectral illumination from a white light (169). See col. 3, lines 28-32, col. 9, lines 10-41 and Fig (8-9).

Bloom does not teach an "illumination means repeating one illumination cycle having a plurality of periods, which include at least periods for illuminating with lights of first, second and third colors which are different from white and different from one another, and two discontinuous periods for illuminating with a white light." Kuramoto on the other hand teaches a method of illuminating a light valve using a light source with modulated intensity such that the light valve provided includes a color sequencer for sequentially selecting one of a first, a second, and a third color-band of light that may reach the light output (see the abstract). For example, Kuramoto teaches (as shown in FIGS. 4A, 5, and 6) a color sequencer (9), and light valves operating with a single spatial light modulator (4, 40), which is sequentially illuminated with three color-bands of light (typically red, green, and blue). Kuramoto also teaches these three individual color-band images as a single full-color image with a full-color frame rate of 24 frames/second being used such that each color-band must be displayed for a period of approximately 1/72 second. See col. 13, lines 13-27. Kuramoto also shown in Fig. 4A the light valve being illuminated with light from the "white" light source (10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bloom's display system to adapt Kuramoto's illumination technique as illustrated in Fig. 4A, 5 and 6. One would have been motivated in view of the suggestion in Kuramoto that the illumination technique as configured in Fig. 4A, 5 and 6 meets

the desired illumination means. The use of illumination helps function color video displays as taught by kuramoto.

In addition, Bloom teaches as shown in Fig. 7 that by constructing an array of pixel units, each including separate but contiguous red, green and blue modulation units of GLVs, each with a grating period designed to diffract the appropriate color into a single optical system, a color display that is illuminated by white light can be achieved. It would have been obvious to utilize Bloom's grating period to determine the needed timing for an illumination of each color.

Bloom does not teach, "space modulation means modulating the lights of the first, second, third colors and white light and respectively". Tai on the other hand teaches that each pixel generates three primary colors which are each controlled by separate optical assemblies, and discloses that in optically subtractive and additive combinations, white can be generated with a high contrast ratio. Tai teaches that color filters are positioned in series and four cells generate eight colors, including black and white, according to the following binary order. See Fig. 1-2

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bloom's display system to adapt Tai's use of color filters. One would have been motivated in view of the suggestion in Tai that the color filters equivalently provide the desired modulation of the first, second and third colors and the white light in a desired order. The use of color filters helps function a color liquid crystal display as taught by Tai.

Regarding claims 2-3 and 40-41, Kuramoto teaches as shown in Fig. 4A the light valve being illuminated with light from the "white" light source (10). Kuramoto teaches that a light is

modulated, by defining a basic time period (an illumination period of the spatial light modulator).

Regarding claims 11-14, Bloom teaches the use of a modulator (30) including liquid crystal modulators, DMD-type devices and other types of modulators. See Fig (8-9), col. 2, lines 17-22, and col. 3, lines 10-19.

Regarding claims 15, 17 and 19, Kuramoto discloses in FIG. 2 the modulation of a light source in a ferroelectric liquid crystal-based light valve with sequential color illumination such as those shown in FIGS. 4A-6. Kuramoto also teaches (FIG. 4B) a front view of a particular type of color sequencer (9) shown in FIG. 4A such that the color sequencer (9) is a wheel (18) that can spin around a pivot (20) driven by a stepper motor (22). Kuramoto further discloses that the wheel includes several filter windows (24) that allow only a particular waveband of light to pass, and blocking the remaining others.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following lists are cited for further reference.

U.S. Pat. No. 5,798 604 to Duboc et al.

U.S. Pat. No. 5,668,568 to Holloman

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulselam** whose telephone number is **(703) 305-8591.** The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709.**

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulselam

Examiner

Art Unit 2674

January 26, 2005

XIAO WU
PRIMARY EXAMINER